



PATENT ABSTRACTS OF JAPAN

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(54) **CONTROLLING METHOD FOR INTERNAL
 COMBUSTION ENGINE**

(57) Abstract:

PROBLEM TO BE SOLVED: To remove nitrate and sulfate adsorbed to a nitrogen oxide storage reduction catalyst by returning an excess air rate to an original rate after operated at a certain time, setting the excess air rate to a specific value.

SOLUTION: When an excess air rate is in a lean burn state, an oxygen ion O_2^- or O_2^- and NO_x are reacted to generate a nitrate ion NO_3^- , the nitrate ion NO_3^- is adsorbed to a surface of a catalyst 1 thereby forming a nitrate. The nitrate on the catalyst 1 is in a saturated state, the excess air rate is made slightly smaller than $\lambda=1.0$, and an internal combustion engine is operated in a rich state for five to six minutes whereby the nitrate is reacted with an unburned HC and CO contained in an exhaust gas. Accordingly, the nitrate on the catalyst 1 is decomposed into an N_2 , CO_2 and H_2O and reduced thereby to be removed. After conduction of rich spike, the excess air ratio is set again to be in the lean state ($\lambda=1.5$). Accordingly, NO_x in the

exhaust gas is reduced by the nitrogen oxide storage reduction catalyst to reduce the amount of NO_x discharged to the atmosphere.

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